

AMENDMENTS

Amendments to the Claims:

1. (Currently Amended) An apparatus for developing failure prediction software for a storage system, comprising:
 - an editor ~~configured~~ to assist a user in generating a failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a ~~human-readable~~ natural language format;
 - a code generator ~~configured~~ to generate machine-readable code from the stored failure prediction algorithm in response to user input;
 - a test module ~~configured~~ to test the machine-readable code with sample data to produce a result in response to user input; and
 - a revision module ~~configured~~ to allow revisions of the failure prediction algorithm in response to user input such that the result corresponds to an expected result.
2. (Original) The apparatus of claim 1, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.
3. (Currently Amended) The apparatus of claim 1, wherein the test module ~~is further configured to tune~~ tunes the failure prediction algorithm by adjusting a fuzzy variable definition in response to user input.
4. (Original) The apparatus of claim 1, wherein the machine-readable code is configured to execute on a storage system.

5. (Currently Amended) The apparatus of claim 1, wherein the revision module comprises a text editor ~~configured~~ to revise the failure prediction algorithm in response to user input.

6. (Original) The apparatus of claim 1, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.

7. (Currently Amended) An apparatus for predicting component failure within a storage system, the apparatus comprising:

a performance monitor ~~configured~~ to gather performance data for a storage system;

a processor ~~configured~~ to execute a failure prediction algorithm on the performance data to produce a result, the failure prediction algorithm comprising fuzzy logic rules; ~~and~~

a determination module ~~configured~~ to selectively forecast failure of one or more components of the storage system in response to the result; and

an interface to adjust a predefined quality threshold of the determination module in response to user input, thereby adjusting the degree of data loss risk and remedial costs associated with a forecasted failure of one or more components.

8. (Canceled)

9. (Currently Amended) The apparatus of claim 8, further comprising an interface ~~configured~~ to adjust a fuzzy variable definition to tune the failure prediction algorithm in response to user input.

10. (Original) The apparatus of claim 9, further comprising a pre-processor to pre-process performance data to provide input data for the failure prediction algorithm.

11. (Currently Amended) The apparatus of claim 10, wherein the determination module ~~is further configured to map~~ maps the result from the failure prediction algorithm to one of a plurality of predefined recommendations.

12. (Currently Amended) The apparatus of claim 11, further comprising a notification module ~~configured~~ to produce a notification in response to the result.

13. (Currently Amended) A system for predicting component failure within a storage system, the system comprising:

a controller ~~configured~~ to control and manage data transactions with a host;

a communication module ~~configured~~ to exchange data between the host and a storage media;

a drive mechanism ~~configured~~ to read data from the storage media and write data to the storage media; and

an analysis module ~~configured~~ to execute machine-readable code programmed to selectively predict failure of the storage media and the drive mechanism in response to a result from a failure prediction algorithm comprising fuzzy

logic rules and performance data associated with the storage media and the drive mechanism, the machine-readable code comprising an interface to selectively adjust a fuzzy variable definition to tune the failure prediction algorithm in response to user input.

14. (Canceled)

15. (Currently Amended) The system of claim 14, wherein the machine-readable code further comprises a pre-processor ~~configured~~ to pre-process performance data to provide input data for the failure prediction algorithm.

16. (Currently Amended) The system of claim 15, wherein the machine-readable code further comprises a determination module ~~configured~~ to map a result from the failure prediction algorithm to one of a plurality of predefined recommendations.

17. (Currently Amended) The system of claim 16, wherein the machine-readable code further comprises a notification module ~~configured~~ to produce a notification in response to the result.

18. (Currently Amended) A method for developing failure prediction software for a storage system, the method comprising:

generating a failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a ~~human-readable~~ natural language format;
generating machine-readable code from the stored failure prediction algorithm;
testing the machine-readable code to produce a result; and

selectively revising the failure prediction algorithm such that the result corresponds to an expected result.

19. (Original) The method of claim 18, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.

20. (Original) The method of claim 18, wherein certain linguistic variables comprise less than three terms.

21. (Original) The method of claim 18, further comprising tuning the failure prediction algorithm by adjusting a fuzzy variable definition.

22. (Original) The method of claim 18, wherein the machine-readable code is configured to execute on a storage system.

23. (Original) The method of claim 18, further comprising revising the failure prediction algorithm by way of a text editor.

24. (Original) The method of claim 18, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.

25. (Currently Amended) A method for predicting component failure within a storage system, the method comprising:

gathering performance data for a storage system;

executing a failure prediction algorithm on the performance data to produce a
result, the failure prediction algorithm comprising fuzzy logic rules; ~~and~~
tuning the failure prediction algorithm by adjusting a fuzzy variable definition;
and
selectively forecasting failure of one or more components of the storage system in
response to the result.

26. (Canceled)

27. (Original) The method of claim 25, further comprising mapping the result to one
of a plurality of predefined recommendations.

28. (Original) The method of claim 25, further comprising producing a notification in
response to the result.

29. (Original) The method of claim 25, further comprising pre-processing
performance data to provide input data for the failure prediction algorithm.

30. (Currently Amended) An apparatus for developing failure prediction software for
a storage system, comprising:

means for generating a failure prediction algorithm comprising fuzzy logic rules,
the failure prediction algorithm stored in a ~~human-readable~~ natural
language format;
means for generating machine-readable code from the stored failure prediction
algorithm;

means for testing the machine-readable code to produce a result;

means for selectively revising the failure prediction algorithm such that the result corresponds to an expected result.

31. (Original) The apparatus of claim 30, wherein the fuzzy logic rules comprise linguistic variables having less than four terms.

32. (Original) The apparatus of claim 30, further comprising means for tuning the failure prediction algorithm by adjusting a fuzzy variable definition.

33. (Original) The apparatus of claim 30, wherein the machine-readable code is configured to execute on a storage system.

34. (Original) The apparatus of claim 30, further comprising means for revising the failure prediction algorithm by way of a text editor.

35. (Original) The apparatus of claim 30, wherein the fuzzy logic rules are defined by conditional statements that include subjects, adjectives, and verbs familiar to personnel in the storage system field.

36. (Currently Amended) An article of manufacture comprising a program storage medium readable by a processor and embodying one or more instructions executable by a processor to perform a method for developing failure prediction software for a storage system, the method comprising:

generating a failure prediction algorithm comprising fuzzy logic rules, the failure prediction algorithm stored in a ~~human-readable~~ natural language format;
generating machine-readable code from the stored failure prediction algorithm;
testing the machine-readable code to produce a result;
selectively revising the failure prediction algorithm such that the result corresponds to an expected result.

37. (Original) The article of manufacture of claim 36, wherein the fuzzy logic rules comprise simple conditional statements that include subjects, adjectives, and verbs that are commonly used to describe error conditions of a storage system.

38. (Original) The article of manufacture of claim 37, wherein the method further comprises tuning the failure prediction algorithm by adjusting a fuzzy variable definition.

39. (Original) The article of manufacture of claim 38, wherein the method further comprises revising the failure prediction algorithm by way of a text editor.

40. (Original) The article of manufacture of claim 39, wherein revising the failure prediction algorithm comprises adding fuzzy logic rules to the failure prediction algorithm.